TB245774N

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S.) EXAMINATION, FEBRUARY 2024

2021 ADMISSIONS SUPPLEMENTARY (SAY)

SEMESTER V - CORE COURSE (CHEMISTRY)

CH5B06B18 - Organic Chemistry - III

Time : 3 Hours **Maximum Marks : 60**

Part A

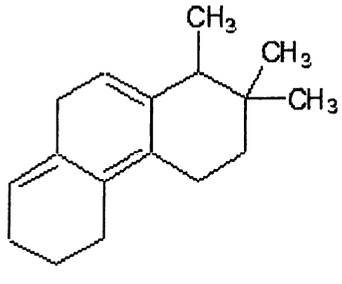
I. Answer any Ten questions. Each question carries 1 mark **(10x1=10)**

1. Identify the product of the reaction $CH_3CONH_2 + Br_2 + 4NaOH$
2. Draw the structures of quinoline and isoquinoline with the numbering of the rings.
3. Determine the product formed by the reaction of primary aliphatic amines with HNO_2.
4. Identify the reagent used for the selective reduction of m-dinitrobenzene.
5. Predict the reactive group in active methylene compounds arranged between two electron withdrawing groups.
6. The C=O stretch in CH_3CHO comes at 1725 cm^{-1} while in C_6H_5CHO, the C=O stretch comes at 1700 cm^{-1}. Explain.
7. Describe why the aldehydic proton appears at ð 9-10 ppm in ^1H NMR.
8. Predict the number of peaks you will observe in the ^1H NMR spectrum of Acetone.
9. Illustrate the structure of paracetamol.
10. Discuss briefly about isotactic polymer.
11. Define antimalarials with one example.
12. Sketch the structure of methyl orange.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Discuss the structure of Methyl amine. Explain the stereochemistry of tertiary amines.
14. Account for the two lone pairs on the Oxygen atom in Furan.
15. Convert Aniline to (a) Benzene (b) Phenol (c) Iodobenzene.
16. Convert Cyanoacetic ester to (a) methyl acetic acid (b) Succinic acid (c) Crotonic acid.
17. Discuss the preparation of Diethyl malonate? From it give the preparation of (a) dimethyl acetic acid (b) Aceto aceticacid (c) Adipic acid.
18. Calculate the λ_{max} of the following compound:



19. Explain briefly about Ziegler Natta polymerisation.
20. Describe the following with suitable examples a) Mordant dye b) Vat dye c) Azoic dye.
21. Explain Broad spectrum and Narrow spectrum antibiotic with the help of suitable examples.

Part C

III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

22. (a) Compare the basicity of Pyrrole, Pyridine and Piperidine (b) Discuss the nucleophilic substitution reactions of Pyridine.

23. Explain the synthesis, electrophilic substitution reactions and resonance of pyridine.

24. A compound with molecular formula C_3H_6O has an IR absorption at 1715 cm^{-1} and a single ^1HNMR absorption at δ 2.1 ppm. The m/z peak comes at 58. Predict the structure of the compound. Justify your answer.

25. Describe in detail about different methods of polymerisation.